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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,220	12/20/2001	Takahiro Saito	1417-375	2632

7590 03/04/2003

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EXAMINER

ASINOVSKY, OLGA

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 03/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
10/023,220

Applicant(s)  
Saito et al

Examiner  
Olga Asinovsky

Art Unit  
1711



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jan 22, 2003
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-16 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-16 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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### DETAILED ACTION

The cancelation of claim 4 is noted.

#### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-3 and 5-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Matyjaszewski et al U.S. Patent 6,407,187.

The rejection is set forth at pages 2-5 of the office action mailed on 10/23/02, paper No. 7 and is incorporated here by reference.

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Applicant's arguments filed 01/23/03 have been fully considered but they are not persuasive.

The applicants amend claim 1 by including a methacrylate-based block copolymer and a polymerization initiator selected from halogen-containing macroinitiators.

The argument is that the first polymerization is the preparation of a macroinitiator and then the second polymerization of monomer containing methacrylate monomer. Applicants argue that Matyjaszewski' 187 does not disclose nor suggest that block copolymer is produced by polymerizing a methacrylate-based monomer in the second polymerization step. Also, the argument is that reference does not disclose the molar ratio of Cu(I) to Cu(II) of 90/10 to 0.1/99.9.

The halogen-containing macroinitiator is a polymerization initiator. There is no statement in the claims that a said halogen-containing macroinitiator is polymerizing first to produce a first block polymer. However, in the present specification at page 16, lines 1-4, "the halogen-containing macroinitiator used in the process of the present invention is a polymer having at least one halogen end acting as a polymerization initiator point (polymerization initiation end)." A method for producing the macroinitiator is disclosed at pages 17-19 in the present specification, wherein "the monomer used for the production of the halogen-containing macroinitiator is not particularly restricted, and any radical-polymerizable monomer may be used for this purpose." The examiner agrees that a macroinitiator is produced in the first step. In the working examples in the present specification the inventors disclose a first step of producing the polymerized

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macroinitiator having a polymerizable monomer such as t-butyl acrylate (macroinitiator A), page 54; n-butyl acrylate (macroinitiator B), page 58; 2-ethylhexyl acrylate (macroinitiator C), page 62; macroinitiator D, page 63. The claimed halogen-containing macroinitiator can include 1-phenylethyl chloride, page 19, lines 6-7.

Matyjaszewski discloses that "an initiator which provides an end group having the same structure as the repeating polymer units (1-phenylethyl chloride as initiator and styrene as monomer)", column 18, lines 6-9. A polymerizable monomer can be any alkene monomer. Therefore, the claimed macroinitiator is readable in Matyjaszewski'187.

Reference discloses a process for radical polymerization of alkenes based on atom transfer radical polymerization (ATRP) for producing block, multi-block, star, dendritic copolymer, column 14, lines 30-33. Blocks can be prepared in essentially any order, column 14, line 45. Any radically polymerizable alkene, including (meth)acrylates, styrenes and dienes can be used, column 6, lines 34-36. The most preferred monomers are methyl acrylate, methyl methacrylate, butyl acrylate, 2-ethylhexyl acrylate, acrylonitrile and styrene, column 8, lines 43-46. Therefore, a block copolymer produced by a free radically polymerizable monomer including methacrylate monomer in the presence of (ATRP) is readable in the reference's invention.

Although Matyjaszewski'187 does not disclose the molar ratio of Cu(I) to Cu(II) of 90/10 to 0.1/99.9, this molar ratio would be inherent in Matyjaszewski'187. Because reference discloses the identical use of the same set of redox system catalyst and in view of the same working mechanism of said set of CuI/CuII, the same process for living radical polymerization for

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polymerizable alkene in the presence of a transition metal compound CuI/CuII and the same polydispersity index for (co)polymers having Mw/Mn preferably 1.4 or less, column 17, lines 48-53.

*Allowable Subject Matter*

3. The following is a statement of reasons for the indication of allowable subject matter:

Matyjaszewski'187 does not disclose a process for producing a block copolymer wherein in the first step is produced a block comprising an acrylate-based monomer in the presence of a redox catalyst comprising a metal complex specified in claim 7, and a polymerization initiator specified in claim 7; and forming a second block chain comprising polymerizing a methacrylate-based monomer in the presence of a redox catalyst having a molar ratio of  $(M)^n$  to  $(M)^{n+1}$  of 90/10 to 0.1/99.9.

Claims 7-16 are deemed to contain allowable subject matter.

*Claim Objections*

4. Claim 1 is objected to because of the following informalities: The bracket in claim 1, lines 12-13, should be removed in the clean version in the amended claim 1. Appropriate correction is required.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is (703) 308-0041. The examiner can normally be reached on Monday to Friday from 9am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on (703) 308-2462. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7718 and (703)872-9311 after final.

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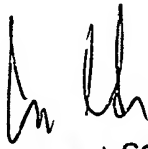
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*O.A.*

O.A.

February 26, 2003

  
James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700